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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,859	09/28/2001	Kenichi Nishikawa	040894-5728	2375

9629 7590 12/22/2003  
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EXAMINER

KRISHNAN, SUMATI

ART UNIT PAPER NUMBER

2875

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

**Application No.**

09/964,859

**Applicant(s)**

NISHIKAWA ET AL.

**Examiner**

Sumati Krishnan

**Art Unit**

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,5-9 and 11 is/are allowed.
- 6) ☒ Claim(s) 10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

Examiner agrees with applicant that claims 2-3 and 5-9 are now in condition for allowance because of their dependence on amended claim 3. Claim 11 remains allowable. However, claims 10 and 12 remain rejected. See below.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (US 5859491) in view of Eppler et al (US 3804666) further in view of Stout (US 3898091).

Nishikawa discloses a spark plug comprising a center electrode (element 4), a metal shell (element 1), and an insulator (element 2) comprising alumina ceramic and disposed between the center electrode and the metal shell (see col. 3 lines 8-13). Nishikawa discloses the insulator covered with a glaze containing a PbO content of 10 wt. % or less which includes the claimed 1 mol % or less. The limitation existing in the claims that the glaze layer has a Vickers hardness of Hv 100 or more is not given any patentable weight because it is considered to be a property of the composition of the glaze layer. Nishikawa does not disclose a phosphate, sulfate or chloride

disposed in the glaze. However, Eppler et al discloses a chloride (see column 3 lines 22-25) in the invention of a ceramic glaze and alternatively, Stout discloses a phosphate disposed in the glaze. It is well known in the art to provide any one of the sulfate, phosphate or chloride in the ceramic glaze as evidenced by Eppler and Stout. Additionally, Eppler discloses that a chloride (calcium chloride) is a typical electrolyte used in the glaze for suspending, dispersing, peptizing and/or thickening. Stout discloses that calcium phosphate added to the glaze composition would provide a source of lime into the glaze which promotes adhesion of the glaze to the ceramic body and contributes stability, hardness and toughness to the glaze. See column 5 lines 44-60. It would have been obvious to one of ordinary skill in the art at the time of the invention to have included a chloride such as calcium chloride in the glaze, as Eppler discloses, because it is well known that such a solution provides excellent properties as an electrolyte which is used for enhancing the glaze as mentioned above. Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a phosphate such as calcium phosphate as disclosed by Stout because such a solution would provide lime into the glaze which significantly enhances properties of the glaze as discussed above.

***Allowable Subject Matter***

Claims 2-3 and 5-9 and 11 are allowed. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 2-3 and 5-9, the prior art of record neither shows nor suggests the glaze layer according to claim 3 containing at least one of phosphate ion, sulfate ion, fluoride ion and chloride ion in a content of 0.5 to 10 mol %.

Regarding claim 11, the prior art of record neither shows nor suggests the glaze layer according to claim 11 formed by adding at least one of  $K_3PO_4$  powder,  $BaSO_4$  powder,  $CaF$  powder and  $KCl$  powder.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

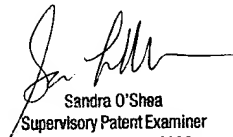
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumati Krishnan whose telephone number is 703-305-7906. The examiner can normally be reached on 8:00 am - 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 703-305-4939. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

SK



Sandra O'Shea  
Supervisory Patent Examiner  
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